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*The Chemical Analysis of the Brain:* Dr. W. KOCH, University of Chicago.

This paper was a preliminary report on the chemical analysis of nervous tissues, including methods for preparing cerebrin, cephalin and lecithin, in sufficient quantity for subsequent work.

*The Study of Metabolism in a Case of Lymphatic Leukæmia:* Dr. YANDELL HENDERSON, Yale.

In a typical case of lymphatic leukæmia, with the white corpuscles at 300,000 and the red corpuscles only 2,500,000, there was no increase in the excretion of nuclein decomposition products (uric acid and  $P_2O_5$ ). The pathological condition, therefore, seems to be due, not to an increased nuclein metabolism, in general, but to a diminished katabolism. As nearly all the leukocytes are lymphocytes, this seems to be due to an arrest in their development—*i. e.*, they are not transformed, as normally, into other forms of white cells.

*The Mode of Action of Certain Substances on the Colored Blood Corpuscles, with Special Reference to the Relation between So-called Vital Processes and the Physico-Chemical Structure of the Cells:* Professor G. N. STEWART, Western Reserve University.

*On the Surface Action of Metals:* Professor F. G. NOVY, University of Michigan.

The author has studied with Professor Freer the conditions favoring the formation of organic peroxides. In Nef's method of preparing benzoyl acetyl peroxide, the reagents, benzaldehyde and acetic anhydride, are mixed with sand and exposed in a thin layer to the action of air, with the result that auto-oxidation takes place, and the peroxide is formed. That this change is one of surface action was demonstrated in various ways. If a strip of paper is introduced into the mixture, the yield of peroxide is increased by more than 200 per

cent. Strips of cloth and various metals were tested in like manner, and gave similar results, showing that the rate of formation of this peroxide depends on surface action, and varies within wide limits with the kind of surface employed.

Demonstrations of apparatus for teaching and for research were made by Professors W. P. Lombard, University of Michigan; W. T. Porter, Harvard; W. S. Hall, Northwestern University; Graham Lusk, New York University and Bellevue Hospital Medical School; and G. P. Dreyer, University of Illinois.

FREDERIC S. LEE.

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SCIENTIFIC BOOKS.

TWO NEW WORKS ON MOSQUITOES.

*A Monograph of the Culicidae, or Mosquitoes,* mainly compiled from the collections at the British Museum from various parts of the world, in connection with the investigation into the cause of malaria conducted by the Colonial Office and the Royal Society. By FRED V. THEOBALD, M.A., F.E.S., London. Printed by order of the Trustees of the British Museum. 1901. 3 vols. Pp. 424, 391, pl. 37+5, text figures 318.

*Mosquito Brigades and How to Organize Them.* By RONALD ROSS, F.R.C.S., D.P.H., F.R.S. London, Geo. Philip & Son. 1902.

The literature of mosquitoes is becoming enormous. The number of scientific papers published about these insects in the last three years has been very great and is increasing almost daily. It is safe to say, however, that two books which will be greeted with the greatest pleasure by thousands of people who have become interested in the mosquito question are those the titles of which have just been given.

When the Royal Society, at the request of the Right Honorable Joseph Chamberlain, appointed a committee to cooperate with the officials of the Colonial Office in the investigation of the causes of malaria and the possibility of controlling that scourge of tropical lands, one of the first steps of the committee was to secure the services of Mr. F. V. Theo-

bald to prepare an illustrated monograph of the family Culicidæ, based upon the collections of the British Museum and upon the collections sent in by private individuals and collectors throughout the world. The date when this work was placed in Mr. Theobald's hands is not mentioned, but his work has certainly been done in little more than two years, and the results are displayed in the three volumes mentioned. The material at his disposal has been larger than has ever been brought together elsewhere and he has described in detail, with synoptical tables of subfamilies, genera and species, 340 species of Culicidæ, distributed in twenty-three genera, 108 of the species and 10 of the genera being new to science. Of the species, 131 belong to the old genus *Culex*, and of these 51 are new to science. Of the malaria-bearing genus *Anopheles*, 39 species are described, of which 12 are new to science. For North America 37 species are described, of which 5 are new, but the author calls especial attention to the fact that but little collecting of mosquitoes has been done upon the Pacific coast.

The end is by no means reached, since Ray Lankester, in his preface, states that collections are still arriving at the Museum, and it is to be hoped that this will continue for years to come; so that a supplementary volume will be necessary at no distant date to record additional species and correct present conclusions.

Mr. Theobald has given the world a remarkable monograph in a remarkably short space of time. His work is original in a high degree. In his preliminary matter, covering nearly a hundred pages, he enters extensively into the morphology of the group and its biology. He arrives at the interesting conclusion that the scale structure of these insects is one of the most important characters for both generic and specific distinction. This conclusion is of great importance, but is in a measure unfortunate for workers since it necessitates the use of a compound microscope in addition to the high-power hand lens for the proper separation of species. He establishes five new subfamilies of Culicidæ, namely, the Anophelina; the Culicina, Ædeomyina, Trichoprosoponina

and Corethrina. It is unfortunate that these groups were not given the uniform subfamily *inæ* termination required by modern rules of zoological nomenclature, but after all this is a small point.

Especial care has been taken with the important subject of geographic distribution, and many interesting points have been brought out. As with other Diptera, these insects have apparently no great faunistic value, and many species, such as *Anopheles maculipennis*, *Culex pipiens*, *C. fatigans* and *Stegomyia fasciata*, are widespread.

The character and great number of the illustrations are worthy of especial commendation, and Mr. Theobald is heartily to be congratulated upon his great work; and the joint committee is to be congratulated as well upon the fact that it is able to secure a man who was able to perform this enormous task so successfully and in so short a space of time. The work is provided with a bibliography, defective in some respects, and with an index which might to advantage have been made somewhat more complete.

Realizing the necessity for concise and practical directions to communities, municipal and health organizations and individuals who wish to start a mosquito crusade, Major Ross, the distinguished investigator who first established the transfer of malarial parasites by mosquitoes and who has since directed the practical work which England has attempted to carry on in certain of her tropical colonies, has filled the want most excellently in his 'Mosquito Brigades.' The book is written by a man of highest scientific rank who is at the same time a practical man. His book is divided into sections, entitled, 'Things to be Learnt,' 'Things to be Done,' 'Summary,' 'Miscellaneous Remarks,' 'Appendix,' 'Books.' It is a handy little book of only 98 pages, but covers the ground in an admirable manner.

Taking the headings of his section, entitled 'Things to be Done,' for example, they are as follows: Appointment of Superintendent, The First Step, How to Raise Funds, Small Beginnings, Organization of the Brigade, Organization and Duties of the *Culex* Gang, Organization and Duties of the *Anopheles* Gang,

Destruction of Larvæ, Destruction of Adults, Last Stages of the Campaign. This is followed by a summary of the objects and a summary of the methods, to which is appended a motto, which Dr. Ross thinks will shortly become the first law of tropical sanitation, namely 'No Stagnant Water.' Major Ross's book is based upon experience gained during many years' study of mosquitoes in many parts of the world, and more especially upon the actual results of the operations now being carried on under the Liverpool School of Tropical Medicine, in West Africa. A great deal is said which applies chiefly to tropical regions, yet the book as a whole should be in the hands of every one in this country who is interested in the fight against mosquitoes.

In his section on sanitary anarchy Dr. Ross complains bitterly of the inertia of the sanitary and medical branches of the Imperial Service, and points out by contrast the energetic measures adopted by our government in Cuba. The British authorities, he says, "love to ponder things. They will go on pondering for twenty years."

L. O. HOWARD.

*The World and the Individual.* Gifford Lectures Delivered before the University of Aberdeen. Second Series: *Nature, Man and the Moral Order.* By JOSIAH ROYCE, Ph.D., LL.D. (Aberdeen), Professor of the History of Philosophy in Harvard University. New York, The Macmillan Co. 1901. 8vo. Pp. xvii + 480. Price, \$2.25, net.

Although it contains what may be called a philosophy of nature, this new series of Gifford Lectures presents less of direct interest to readers of SCIENCE than its predecessor. Accordingly, as a detailed philosophical criticism would be out of place here, it may suffice to give a general account of the work, and some indication of the author's standpoint.

The lectures, ten in number, fall roughly into three main parts and an epilogue. (1) Lectures I.-III. furnish what Mr. Royce himself calls 'a sketch of an idealistic Theory of Human Knowledge' (Preface, vi). Lecture IV., on 'Physical and Social Reality,' mediates

between this Theory and the outline of a Philosophy of Nature, which follows. (2) Lecture V. supplies this outline, and an inkling of its purport may be obtained from the following passage. "Any hypothesis about Nature, which is just to the demands of a sound metaphysic, must, like ours, conceive the natural world as directly bound up with the experiences of actually conscious beings. That, in addition to all these considerations, we should be led to reject Berkeley's cosmological hypothesis, is due, in part, to our own special form of Idealism; but, in part, also to the fact that our theory about nature ought to be just to the empirical inductions which have now been summed up in the modern Doctrine of Evolution. The essence of this Doctrine of Evolution lies in the fact that it recognizes the continuity of man's life with that of an extra-human realm whose existence is hinted to us by our experience of Nature. Accepting, as we are obliged to do, the objective significance of this modern doctrine, we find ourselves forced to interpret Nature, not as an arbitrarily determined realm of valid experiences founded only in God's creative will and man's sensory life, but as an orderly realm of genuine conscious life, one of whose products, expressions, and examples we find in the mind of man" (241-2). (3) Lectures VI.-IX. discuss the self and the problems which occur in considering the relation of the self to a universe of physical and social reality, where it is at once a factor and the feature. Lecture X. contains the epilogue. Here, gathering up all the conclusions reached hitherto, Mr. Royce attempts to estimate the significance of the individual life in relation to the cosmic whole, and to that ultimate unity which natural religion terms God. Of course such an inquiry touches the conclusions of modern science at every point. But, for this very reason, it is difficult in any case, and impossible in a short review, to show what the point of contact is. Rather, each one who is interested must find out for himself by perusal of the entire argument.

Apart altogether from its considerable weight as a contribution to original metaphysical thought, the work has great significance

as an indication of prevalent philosophical tendencies in English-speaking lands. Save for the sporadic efforts of Coleridge and Carlyle in Britain, of Emerson and his group in this country, the English mind remained in long isolation from the transitive speculation of Europe, originated by Kant and Herder, cast abroad by Goethe, and systematized by Hegel. At length, in the sixties of the nineteenth century, thanks to Dr. Stirling, Wallace, the brothers Caird, Mr. W. T. Harris and the St. Louis circle, Hegel burst upon the Anglo-Saxon world, and threatened to carry all before him by the seventies. During the same years, the hypothesis of evolution, together with certain discoveries in physiology and physics, brought scientific men into contact with metaphysical problems which had been stilled awhile. Huxley's speculations, significant in their changes, Clifford's 'mind-stuff,' and similar so-called 'monistic' theories, were the result—a belated product being Haeckel's recent 'Riddle of the Universe.' While the immanent tendencies and animating problems happened to be much the same in both cases, it may be declared that the Hegelian and the Clifford-Huxley explanations could not be true together. As a matter of fact, each emphasized elements incident to the problem which the other minimized. A few of the younger men trained, like Mr. Royce, in the idealistic school, have come to clear consciousness of this situation; and, retaining the essential principle for which Hegel stands, have striven to rid themselves of his formalistic baggage, so affording opportunity for a fuller recognition of the scientific standpoint and—more important—of the scientific conscience. On the whole, then, these lectures are essentially mediating. This constitutes their strength now, and will prove their weakness twenty years hence. They cleave to the idealistic as opposed to the 'monistic' solution. On this ground I have no fault to find with them.

At the same time, I am by no means satisfied that the implications of 'monism' have been threshed out thoroughly, even if the discussion differ widely, as it does, from such cavalier treatment as that accorded, say, by

Professor Pringle Pattison in the new 'Dictionary of Philosophy.' Moreover, I have very serious misgivings about the evident reversion to Fichte manifested by Mr. Royce. Nevertheless, his lectures constitute a thoroughly characteristic contribution—one that cannot be overlooked—to the very meaningful development within the English sub-Hegelian school. And if Mr. Royce appear to look back more than Mr. F. H. Bradley or Mr. Ellis McTaggart, one must perhaps hold the lecture-form of his work partly responsible. I am still haunted by the idea, to which I have given expression more than once, that it is a real misfortune that Mr. Royce should have produced so extended a series of books dominated by this method. For, as he himself says, 'In the public lecture-room the hearer has no time to meditate, and the speaker too little opportunity to be either concise or exhaustive.' We await the 'system' therefore. Like little girls, we believe in the man in the moon, but, like older girls, we would believe more in the man in the honeymoon.

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#### SCIENTIFIC JOURNALS AND ARTICLES.

*Popular Science Monthly* for February is of more than usual interest for the general reader. The first article, on 'Stellar Evolution in the Light of Recent Research,' by George E. Hale, shows how much knowledge has been gained by the use of the camera and spectroscope. In 'Winged Reptiles' S. W. Williston tells of the pterodactyls, and particularly of the great American toothless species of the genus *Ornithostema*, which includes the largest flying animals. Appropriately following this is 'The Journeyings of Birds,' by F. H. Knowlton, which gives an excellent résumé of the subject of bird migration, and Otis T. Mason discusses 'Environment in Relation to Sex in Human Culture'; and R. H. Thurston, in 'The College Man as Leader in the World's Work,' expresses his belief that the educated man will in the future be even more in the front than now. Charles B. Dyke treats of 'Theology versus Thrift in the Black Belt,' believing that the religious teaching received